

AN OLD MAN LOOKS BACK.  
SCIENCE AND THE FEDERAL  
GOVERNMENT: 1945 - 1950

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OLD men's memories are notoriously unreliable. Historians are loath to depend on testimony of eye witnesses 25 years after an event. Nevertheless I propose to put on paper my memories of how the federal subsidy of scientific research in American universities started shortly after the close of World War II. The matter is of some interest at present. In the last few years many universities have been criticized, particularly by the young, because their professors were carrying on secret research for one or more branches of the Department of Defense. As I hope to show, the close connection between university research and the armed forces was in a sense an accident. The blueprint for the federal subsidy of scientific investigation in the postwar world had been written by Vannevar Bush in early 1945. It contained no indication that the Navy, the Army, or the Air Force would be involved in the furthering of scientific research by the federal government. On the contrary, what was recommended was the establishment of an entirely civilian agency. If the Truman administration had followed the recommendations put forward by Dr. Bush in *Science the Endless Frontier*, the support of science in the postwar world would have been very different from what it actually became.

It is important to remember that *Science the Endless Frontier* was written in response to a letter from Franklin D. Roosevelt, president of the United States, to Dr. Bush, dated November 17, 1944, which started as follows:

Dear Dr. Bush: The Office of Scientific Research and Development, of which you are the Director, represents a unique experiment of team-working and cooperation in coordinating scientific research and in applying existing scientific knowledge to the solution of the technical problems paramount in war. Its

work has been conducted in the utmost secrecy and carried on without public recognition of any kind: but its tangible results can be found in the communiques coming in from the battle-fronts all over the world. Some day the full story of its achievements can be told.

There is, however, no reason why the lessons to be found in this experiment cannot be profitably employed in times of peace. The information, the techniques, and the research experience developed by the Office of Scientific Research and Development and by the thousands of scientists in the universities and in private industry, should be used in the days of peace ahead for the improvement of the national health, the creation of new enterprises bringing new jobs, and the betterment of the national standard of living.

The letter goes on to ask for recommendations on four major points, of which the third was in the form of a question:

What can the Government do now and in the future to aid research activities by public and private organizations? The proper roles of public and of private research, and their interrelation, should be carefully considered.

By the time Dr. Bush had written his answer in the form of a report, a new president was directing affairs in Washington. The scene had changed. Bush had been the only close advisor to President Roosevelt on scientific matters. If Roosevelt had lived, he would have been strongly inclined to follow Dr. Bush's advice in organizing science after the end of the war. If the president's prestige had been back of the proposals in *Science the Endless Frontier* in 1945, I cannot but believe that they would have been accepted promptly by Congress. As it was, the first bill to establish a National Science Foundation was passed by Congress in August 1947 and promptly vetoed by President Harry S. Truman. The administrative arrangements were unsatisfactory to the most influential of Truman's advisors. Three years were to elapse before a second bill was passed by the two houses of Congress and laid before the president for his signature. Truman signed, but it was too late. The armed forces had taken over.

In *Science the Endless Frontier* Bush put forward a program which was accepted with enthusiasm by the scientists of the country. A new agency was to be created, composed of persons of broad interests and

experience, having an understanding of the peculiarities of scientific research and education. The new agency was to have "stability of funds" so that long-range programs might be undertaken. Internal control of policy, personnel, and methods of scientific research was to be left to the institutions in which research was carried on.

The program entitled *A Program for Action* concludes with the words: "Early action on these recommendations is imperative if this nation is to meet the challenge of science in the crucial years ahead."

Early action was not taken. Too many people came forward with ideas about the organization of a National Science Foundation. In the meantime the Navy, through its Office of Naval Research, had begun to subsidize research. At least one university president was worried. In my *Report* as president of Harvard University to the Board of Overseers (dated January 1947) I reported that "not inconsiderable amounts of government money" were being spent in the universities. "Here at Harvard, for example," I wrote, "we have no less than 28 research contracts with the Federal Government involving the expenditure, over the two years 1946-47 inclusive, of something like \$3 million."

I pointed out that "The problems covered by the present agreements are essentially of a non-military nature and are not confidential or secret; all the results may be published freely." I then ventured the opinion that "It would seem more appropriate for Federal money for basic research to flow through a civilian scientific channel." I pointed out that "If the National Science Foundation is created by the present Congress, this will undoubtedly take place. The foundation should be in a position to make substantial grants to universities for the support of basic research which has become so very expensive in these days." Now comes the important sentence: "Such grants would presumably be in no way connected with direct military projects. Indeed, in time of peace I think it highly inadvisable for a university to undertake the type of work which was done during the war: namely, secret research or development." I gave it as my opinion that "All such research in peacetime should be done in government establishments or by contract with industry."

My words reflected the sentiment of the Harvard University community. Shortly after the close of hostilities, the Harvard Corporation had decided on my advice that Harvard would no longer enter into contracts with any branch of the federal government if the contract

involved handling classified material. I recall announcing this decision of the corporation to a meeting of the Faculty of Arts and Sciences sometime in 1946. No one dissented. Indeed, in those days it seemed obvious that the corporation would give up the role it had played during the war. It was no longer to be responsible to the federal government for the research which was being undertaken. My uneasiness about carrying over into peacetime a relation between the universities and the federal government which had been necessary in wartime was shared by essentially all Harvard professors.

Few if any other universities followed Harvard's lead. By the time a National Science Foundation was finally established in 1950, the Office of Naval Research had already entered into contractual relations with a number of leading universities, and most of these contracts did not preclude work on secret projects.

At the time I was not happy about the way the support of science and the armed forces were becoming closely connected. However, as chairman of the first board of the National Science Foundation in 1950-1951, I had to make the best of a situation which had developed in many institutions. Now, looking back at my original doubts as expressed to the Board of Overseers in January 1947, and reading the daily news reports about student protests, I cannot help saying something which old men should be forbidden to say, namely: "I told you so."